ORIGINAL ARTICLE

Histopathological review of male breast cancer in Kano, Northwestern Nigeria: A teaching hospital experience

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ABSTRACT

Background: Male breast cancer is rare worldwide and accounts for about 1% of all breast cancer cases. Previous studies in Nigeria and other parts of the world attest to the rarity of male breast cancer. However, there is no published report on male breast cancer from Kano, Northern Nigeria despite the increasing incidence in Africans.

Objective: This study describes the age frequency and morphological pattern of male breast cancer in Kano, Northwestern Nigeria.

Materials and Methods: This was a 16-year (2001-2016) retrospective study of all male breast cancer cases that were histologically diagnosed at the histopathology department of Aminu Kano Teaching Hospital, Kano. The histology slides were retrieved and reviewed. Fresh sections from archival paraffin blocks were obtained when original slides could not be retrieved and special stains deployed where necessary. The cases were then classified by the authors and the results were then analyzed, presented using frequency table and line diagram while the tissue microscopy presented as photomicrographs.

Results: A total of 1,006 breast cancer cases were diagnosed during the 16-year review period. Out of this number, 61(6.1%) cases were males. The age range was between 28 and 79 years with a mean age of 64.5 years. The highest frequency of 26 (42.6%) cases occurred between 61-70 years while the lowest frequency of 2 (3.3%) cases occurred in the third decade. Invasive Carcinoma NST was the predominant histological type accounting for 42 (68.9%) cases. This was followed by papillary carcinoma with 6 (9.8%) cases, medullary carcinoma with 4 (6.6%) cases and lobular carcinoma with 3 (4.9%) cases.

Conclusion: Breast cancer though uncommon in males, it accounts for 6.1% of all breast cancer cases in this study, which further confirms the higher incidence in Africans. Most of the presentations were in the seventh decade and invasive Carcinoma was the predominant histological subtype.

KEYWORDS: Male breast cancer, invasive Carcinoma NST, Nigeria

Introduction

Breast tumours are very common and can broadly be divided into benign and malignant tumours. Benign breast tumours are usually more common, they tend to occur more in the younger patients and are only of importance because they raise the suspicion of malignancy.

Breast cancer is by far the most important tumour of the breast, it constitutes a major public health issue globally and male breast cancer is said to be rare worldwide[1]. In developed countries breast cancer is 100 times more common in women than in men, meaning that male

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breast cancer accounts for about 1% of all breast cancer cases. It is 0.2 % of all male cancer cases and 0.1% of cancer mortality in men[2].

The exact cause of male breast cancer is unknown but is associated with some risk factors such as positive family history, Klinefelters syndrome, oestrogen therapy, irradiation, gynaecomastia, alcohol, chronic liver disease and obesity[3]. Fine needle aspiration cytology of the breast which is fast, inexpensive and minimally invasive has proved to be quite helpful in the diagnosis of breast cancer, but histological examination of the tissue obtained by either incisional or excisional biopsy still remains the goal standard of diagnosis. There is no previous report or work on male breast cancer in Kano, so this study aims to describe the age frequency and morphological pattern of male breast cancers in our centre.

Materials and Methods

The materials for this retrospective study comprised of 61 cases of incisional and excisional biopsies of histologically diagnosed male breast cancers recorded in the Histopathology Department of Aminu Kano Teaching Hospital over a 16-year review period from 1st January, 2001 to 31st December, 2016.

The laboratory request forms and duplicate copies of histology reports of all cases were retrieved and the age was extracted. The corresponding slides were also retrieved and reviewed by the authors. In few cases of faded and missing slides, fresh sections were made from the tissue blocks and stained with Haematoxylin and Eosin (H&E). Mucicarmine and Alcian blue special stains were applied to demonstrate mucin in Mucinous carcinoma.

The tumours were then classified into the histogenetic groups according to the WHO International Classification of breast tumours (2012)[1].

The results were then analyzed and presented using frequency table and line diagram while the tissue microscopy presented as photomicrographs.

Result

A total of 1,006 breast cancer cases were diagnosed during the 16-year review period. Sixty one (6.1%) cases of these were males. Their age range from 28 to 79 years with a mean age of 64.5 years. Table 1 depicts the relative frequency and age distribution of different histological subtypes. The highest frequency of 26 (42.6%) cases occurred between 61-70 years while the lowest frequency of 2 (3.3%) cases occurred in the third decade. The distribution of male breast cancers by histologic subtype showed Invasive Carcinoma NST was the commonest which accounted for 42 (68.9%) cases. This was followed by 6 (9.8%) cases of papillary carcinoma, 4 (6.6%) cases of medullary carcinoma and 3 (4.9%) cases of invasive lobular carcinoma. The frequencies of other histological types are also shown in Table 1. None of the cases was tested for hormone receptors.

Figures 1-3 shows photo-micrographs of invasive carcinoma NST, invasive lobular carcinoma and medullary carcinoma, while figure 4 shows line diagram depicting the trend of male breast cancers over the period of study.

Table1: Histological types and age distribution of male breast cancer in Kano

	Age group (years)						
Histologic type	***21-30***	***31-40***	***41-50***	***51-60***	***61-70***	***71-80***	***Total (%)***
Invasive carcinoma	2	0	6	11	17	6	42(68.9%)
Invasive lobular	0	0	0	0	2	1	3(4.9%)
Papillary	0	0	0	1	3	2	6(9.8%)
Medullary	0	0	1	1	1	1	4(6.6%)
Mucinous	0	0	0	1	0	0	1(1.6%)
Metaplastic	0	0	0	0	1	0	1(1.6%)
Apocrine	0	0	0	0	1	0	1(1.6%)
Cribriform	0	0	0	0	0	1	1(1.6%)
Adenoid cystic	0	0	0	0	0	1	1(1.6%)
Ductal carcinoma	0	0	0	0	1	0	1(1.6%)
Total	**2(3.3%)**	**0**	**7(11.5%)**	**14(23.0%)**	**26(42.6%)**	**12(19.6%)**	**61(100%)**

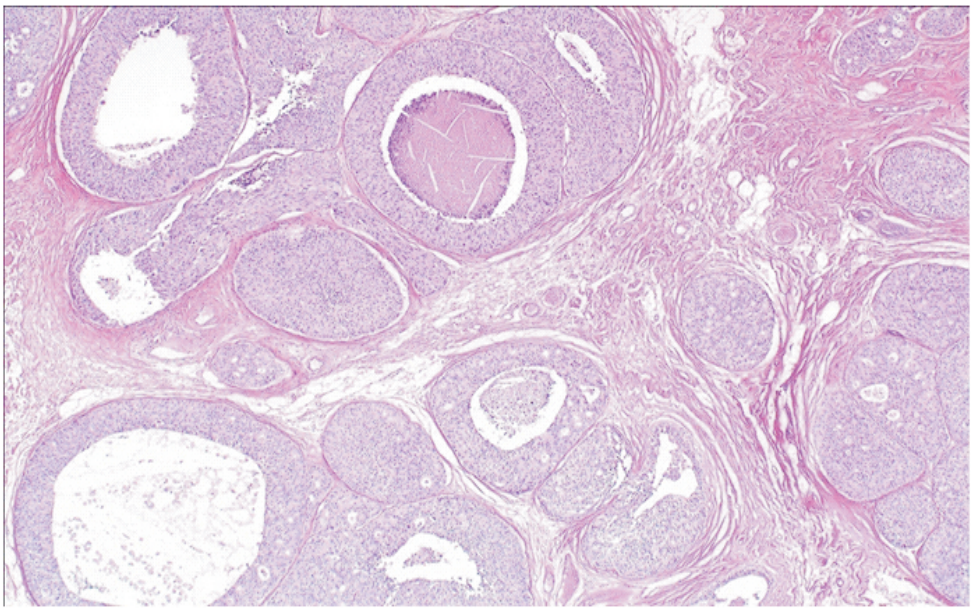

Figure 1: Invasive carcinoma (NST) showing nests of malignant ductal epithelial Cellsand comedonecrosis within a desmoplastic stroma (H&E) X 100.

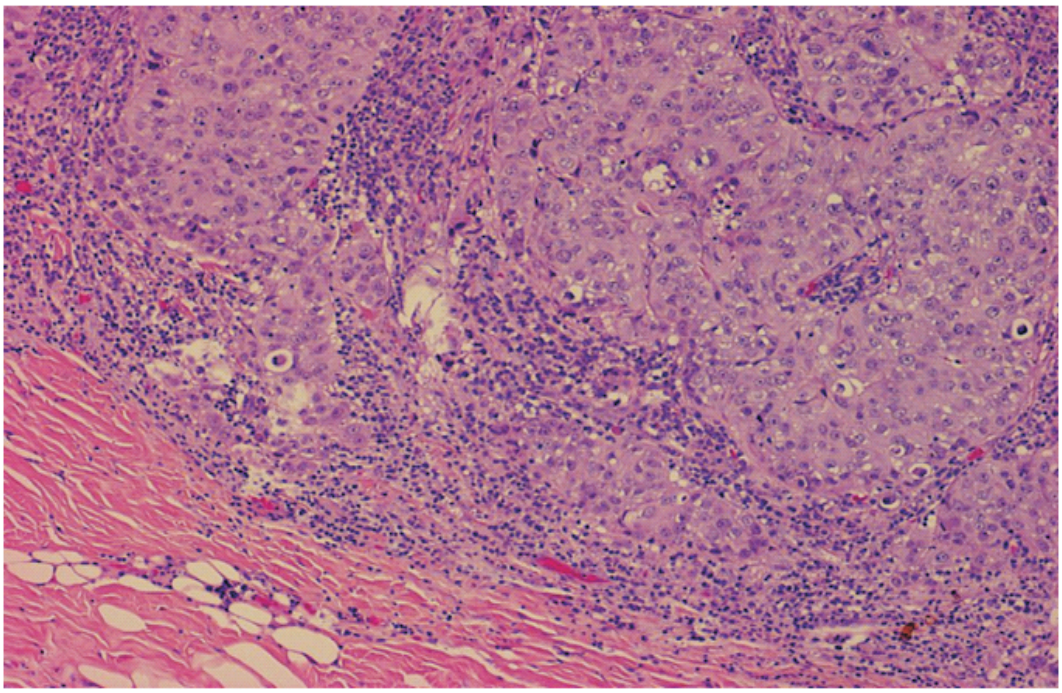

Figure 2: Medullary carcinoma showing syncytial sheets of malignant cells and Lymphoplasmacytic infiltrates within the tumour (H&E) X100

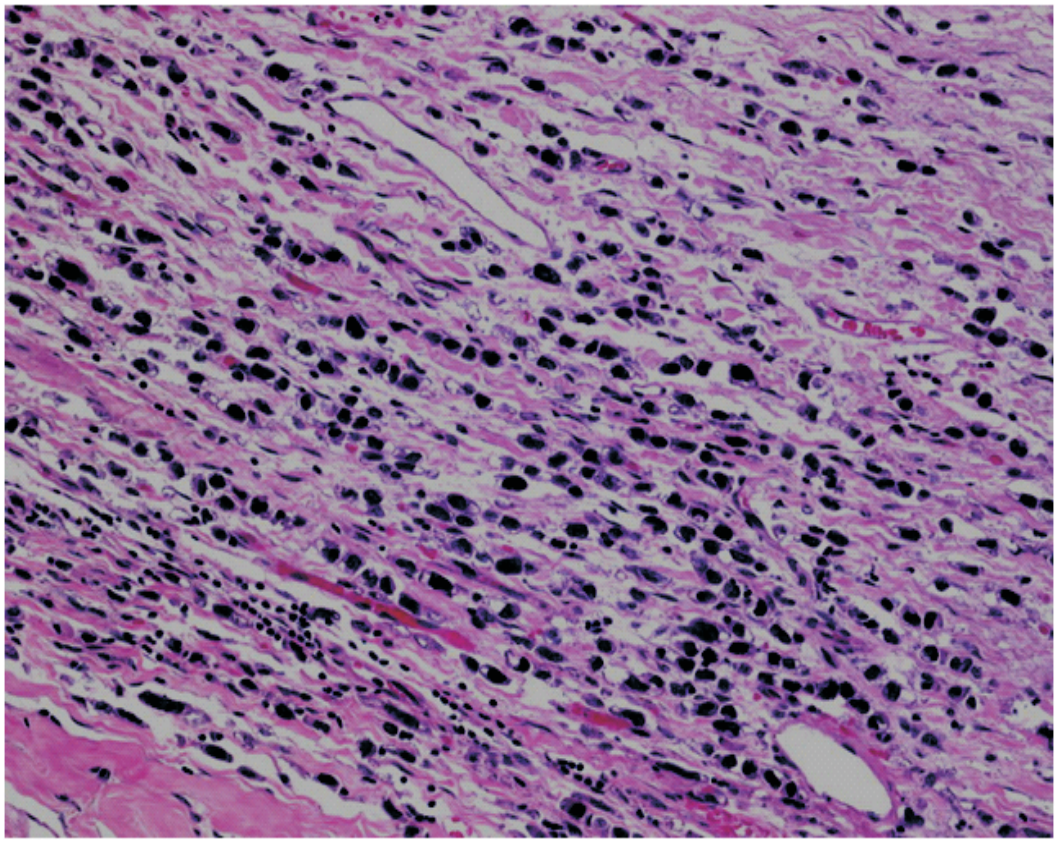

Figure 3: Invasive lobular carcinoma showing single regular small malignant cells arranged in an Indian file pattern (H&E)X100

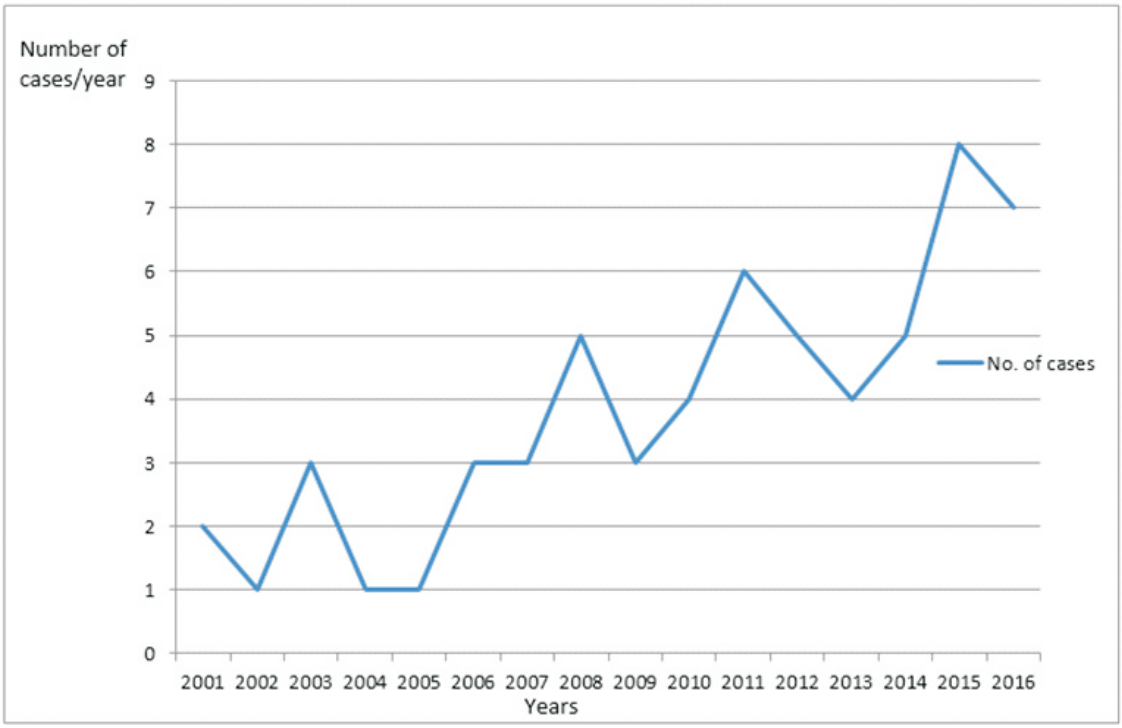

Figure 4: Graph showing number of male breast cancer cases per year

Discussion

Breast cancer is common worldwide and is among the most commonly discussed malignancy in the literature. A total of 1006 malignant breast tumours were seen during the study period with an average of 63 cases per year. These represented 14.3% of the entire histopathologically diagnosed 7,035 malignant tumours during the 16-year review period. This figure agrees with the report from Ghana[4] and is at variance with findings from Pakistan[5] and Kenya[6]. Out of the 2,942 breast biopsies received, 34.2% are breast cancer cases, a finding that is similar to 31.8% reported by Adeniji et al[7] in Ilorin but is higher than 21% reported by Oluwale et al[8] in Ife and 26.6% by Otu et al[9] in Calabar.

Male breast cancer constituted 61 (6.1%) cases of all the breast cancers in this study, which is more than the 1% found in developed countries[10]. High incidence rate was also documented in some countries like Kenya (12.5%)[11], Uganda(9.7%)[12] and Zambia (15%)[13]. In conformity with this rise in incidence beyond worldwide figures, studies in Benin[14], Zaria[15], Ibadan[16], Ilorin[17], Ife[18], Enugu[19], Jos[20] and Maiduguri[21], Nigeria, found male breast cancer constituting 2.2%, 5.2%, 3.4%, 5.1%, 1.9%, 8.0% , 8.6% and 3.7% of all breast cancer cases respectively. The high incidence of cirrhosis of the liver and hepatocellular carcinoma in Africans with elevated oestrogen levels may be responsible for the higher incidence of carcinoma of the male breast. This is the reverse of the pattern found in females in which the incidence of carcinoma of the breast is higher in Caucasians compared to Africans[8].

Several studies have found that the mean age of presentation of male breast cancer

is about 60-65 years with an age range of 20-90 years and the age specific incidence increases steadily throughout life[22]. The mean age of patients seen in this review was 64.5 years and 65.6% of them were in the age group of 51-70 years with peak incidence (42.6%) in the age group of 61-70 years. These results are in keeping with other similar studies[17, 20]. Even though male breast cancer is seen to be more in the elderly in this study, we have observed involvement of younger patients in our experience, which may be due to geographic or lifestyle reasons.

Male breast cancer could be diagnose by triple assessment; clinical assessment, mammography or ultrasound and by fine needle aspiration cytology or tissue biopsy. Mammography is not commonly used in the diagnosis of patients with breast lesion in developing world mostly because of its unavailability and unaffordability by many patients, but is said to be very effective with sensitivity of 92% and specificity of 90%[23].

Fine needle aspiration cytology in men with breast cancer remains one of the cheapest and fastest diagnostic procedure. This may be due to its cost effectiveness and is less invasive. Tissue biopsy for histology gives a definitive diagnosis and is the only investigation that can differentiate a ductal carcinoma-in-situ from invasive carcinoma.

Invasive Carcinoma NST was the most common histological subtype and accounted for 42 (68.9%) cases of all male breast cancers received which agrees with findings from Nigeria[16, 17] and other part of the world[12-13]. This was followed by 6 (9.8%) cases of papillary carcinoma, 4 (6.6%) cases of medullary carcinoma and 3 (4.9%) cases of invasive lobular carcinoma. Invasive lobular carcinoma has high incidence of bilaterality, it is quite anuncommon carcinoma in males and only three cases were found in our study.

This latter finding was consistent with what was reported at the University College Hospital Ibadan by Aghadiuno[16] who reported two cases while a similar study in Ife[8] reported no case of invasive lobular carcinoma. Rarity of this variant of carcinoma in Caucasian males was also documented in a study by Roswit[24] who recoded not a single case in their 30 years review. It may therefore be concluded that lobular carcinoma in a male breast is extremely rare in both Caucasians and Africans[16].

Conclusion

The result of this study have shown that even though the incidence of male breast cancer is low in our center but is still higher than in Caucasians and coordinated and population-based studies are needed to establish the overall incidence of male breast cancer cases in Nigeria. The histopathological pattern of the disease is similar to female breast cancer globally with invasive Carcinoma NST predominating. In view of the rising incidence of male breast cancer cases in Nigeria, a prospective database aimed at future determination of its epidemiological, clinical and molecular characteristics is necessary.

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Cite this article as: Imam Mohammed Ibrahim, AkinfenwaTaoheedAtanda. Histopathological review of male breast cancer in Kano, Northwestern Nigeria: A teaching hospital experience. **Bo Med J 2017;14(2):** 183 - 189.
Source of Support: Nil, **Conflict of Interest:** None declared.